

Program: Dr. J. M. ALDRICH, retiring address: *Limitations of taxonomy.* The speaker discussed a considerable number of physical and psychological limitations, which led him to believe that the ultimate classification of insects is very much farther in the future than commonly believed, even by the taxonomists. The address will be published in full in *Science*.

Discussed by Messrs. HOWARD, ROHWER, and MORRISON.

Dr. J. M. SWAINE, Ottawa, Canada, conveyed greetings from the Entomological Society of Ontario to the Entomological Society of Washington, and expressed his pleasure at opportunity for studying in the U. S. National Museum, especially in the Casey and other special collections. He spoke briefly of some of his recent field work from Cape Breton to British Columbia, and of a trip on the Pacific Coast and in the Mohave Desert.

Mr. RALPH HOPPING, of Vernon, B. C., outlined briefly some of his recent work in British Columbia in control of fruit insects, discussed some noteworthy insect outbreaks, and recorded the collection by him of 173 cutworms around a marigold bush.

Mr. R. E. CAMPBELL, of Alhambra, California, reported on a field trip through parts of Southern California, on which trip he collected a number of rare Bostriichids, *Dinapate wrighti* Horn, from palm trees, on which he later caused the market price to drop from \$20 to \$5 and less per pair.

Discussed by Messrs. HYSLOP, CURRIE, and SIMMONS.

Prof. W. P. FLINT, of Urbana, Illinois, conveyed greetings from the Illinois entomologists to our Society and expressed his pleasure at being with us.

Prof. J. S. HOUSER, of Wooster, Ohio, discussed the address of the President and added another chapter to his famous so-called "fishworm story," in which angleworms had been reported by him as attacking onions. He narrated another instance of injury by them, this time to pansies.

Prof. JOHN J. DAVIS, of Lafayette, Indiana, gave some reminiscences of meetings of the Society years ago at Sangerbund Hall. He discussed some of the Indiana work by himself and Mr. Cleveland on the effects of flies on dairy cattle in relation to milk production. They found that spraying the animals notably increased milk flow.

Mr. L. M. PEAIRS, Morgantown, West Virginia, discussed insect conditions in his State and gave reminiscences of attendance at former meetings of the Society.

Mr. A. A. GRANOVSKY, Madison, Wisconsin, referred briefly to recent work by that State in airplane dusting of hemlock forests and to researches conducted by the Experiment Station on the relation of certain leaf-hoppers to alfalfa yellows.

Mr. PEREZ SIMMONS presented a brief paper on the ability of the larva of the cheese skipper, *Piophilha casei* Linn., to endure unfavorable conditions. The unusual hardihood of the maggots of the cheese skipper is shown by their ability to withstand starvation, low temperatures, high temperatures, and immersion in many liquids which would be promptly fatal to most insects. The usual duration of larval life in hot weather is five or six days, but when proper food is lacking the larval stage may last for as many months. Maggots were found to live in a temperature of 45° to 50°F. for a maximum of seven months. They withstood 32°F. for three months. Half-grown larvae lived for 64½ hours at 5°F. A Russian writer reports that larvae lived two weeks in a temperature of -7°F. Some larvae recovered after exposure to 122° to 124°F. for four hours. They survived about two minutes when immersed in water at a temperature of 129°F. Several European workers have conducted experiments with liquids, such as 95 per cent alcohol, ether, formalde-

hyde, turpentine, petroleum, carbon disulphide, and xylol, and maggots proved to be surprisingly resistant to immersion in these reagents. Maggots buried by the speaker in Pyrethrum powder pupated in it, and others pupated after immersion for $3\frac{1}{4}$ hours in gasoline. Although other insects are reported to be more resistant to starvation and to high and low temperatures, the all-round hardihood of the cheese skipper larvae appears to be without parallel. (*Author's abstract.*)

Discussed by Dr. ALDRICH, and by Dr. HOWARD, who narrated a story from Reade's "Cloister and the Hearth."

390TH MEETING

The 390th regular meeting was held February 8, 1927, in Room 43 of the U. S. National Museum. President J. A. HYSLOP presided. There were present 30 members and 16 visitors.

The Secretary-Treasurer reported briefly on a meeting on January 17 of the Executive Committee and read a letter recently received from Dr. Geza Horwath thanking the Society for the friendly greetings sent him in celebration of his 80th birthday. He also read a letter from the Honorary President, Dr. E. A. SCHWARZ, in which Dr. SCHWARZ formally presented to S. A. ROHWER as Corresponding Secretary of our Society his library of books and pamphlets. After remarks by Dr. HOWARD it was ordered by the Society that suitable resolutions of thanks be transmitted to Dr. SCHWARZ. Not only the gift but the thoughtfulness and affection which prompted it are deeply appreciated by the Society.

The principal feature of the program was a symposium on arsenical spray residue, conducted under the direction of Dr. A. L. QUAINANCE, who gave a brief historical résumé of the progress of work with arsenicals since about 1860. He called special attention to arsenate of lead, which was developed in 1892 by Prof. Moulton as a treatment for shade and other trees in connection with the control of the gipsy moth in Massachusetts. This arsenical was much the best of any available for use on such deciduous fruits as apples and pears by reason of its quality of sticking to fruit and foliage and its harmlessness to the plants. In consequence arsenate of lead has become the main dependence of orchardists for the control of such serious pests as the codling moth and plum curculio. In some regions the codling moth especially is excessively destructive and growers have been given to excessive spraying with arsenate of lead, sometimes so late in the season that a considerable amount of arsenate of lead spray residue might be present on the marketed fruit. This condition gradually grew worse and necessitated a decided change in spray practice and the development of methods to remove spray residues on fruit before marketing. Not only is arsenic in excessive quantities objectionable, but lead also, an accumulative poison, is considered by pharmacologists and others to be equally or more dangerous. The speaker therefore felt that considerable experimental work should at once be undertaken to determine other arsenicals than arsenate of lead, and other stomach poisons than arsenicals for the use of orchardists and vegetable growers. He explained that a large cooperative program of experimental work was being developed between the Bureau and a number of the Entomologists of the State Agricultural Experiment Stations. While the situation at present was considered critical, the speaker had no doubt of the timely working out of the problem.

Dr. P. B. DUNBAR, Assistant Chief, Bureau of Chemistry, discussed the